

WHAT IS CLAIMED IS:

1           1.       A valve cover locking screw assembly for a reciprocating pump module block having  
2       a bore, a removable valve cover closing said bore, and a valve cover locking ring with internal  
3       threads surrounding said bore, which assembly comprises:

4                   a valve cover locking screw having cylindrical walls with external threads, a closed  
5       top, and an open bottom; and

6                   a plurality of threaded bolts engaging a plurality of threaded openings through said  
7       cylindrical walls of said locking screw so that said plurality of bolts forces said valve cover against  
8       said module block to create a fluid tight seal.

1           2.       A valve cover locking screw assembly as set forth in Claim 1 including a circular  
2       gasket between said valve cover and said module block to assist in forming a fluid tight seal.

1           3.       A valve cover locking screw assembly as set forth in Claim 1 wherein said bore in  
2       said module block includes a circular shoulder to receive said valve cover thereon.

1           4.       A valve cover locking screw assembly as set forth in Claim 1 including an eye bolt  
2       extending from said valve cover to act as a handle for said cover.

1           5.       A valve cover locking screw assembly as set forth in Claim 1 including a plurality  
2       of removable fasteners between said locking ring and said module block to secure said locking ring  
3       to said module block.

6. A valve cover locking screw assembly as set forth in Claim 1 wherein each of said threaded bolts and each threaded opening is parallel to an axis of said cylindrical walls of said locking screw.

7. A valve cover locking screw assembly as set forth in Claim 1 including a head extending from said closed top of said locking screw.

8. A valve cover locking screw assembly as set forth in Claim 1 wherein a diameter of said removable valve cover is slightly less than an inner diameter of said locking ring.

9. A valve cover locking screw assembly as set forth in Claim 1 wherein said locking screw retrofits with an existing valve cover and locking ring.

10. A method to secure and seal a valve cover to a module block for a reciprocating pump, which method comprises:

inserting a removable valve cover through a valve cover locking ring secured to said module block over a bore in said module block;

threading a valve cover locking screw having cylindrical walls with external threads, a closed top, and an open bottom, in to said locking ring so that internal threads on said locking ring mate with said external threads of said locking screw; and

threading a plurality of bolts through threaded openings in said cylindrical walls of said locking screw so that said bolts force said valve cover against said module block.

1           11.     A method as set forth in Claim 10 wherein said step of inserting said valve cover  
2 includes using an eye bolt extending from said cover as a handle.

1           12.     A method as set forth in Claim 10 including the additional step of inserting a circular  
2 gasket against said module before inserting said valve cover.

1           13.     A method as set forth in Claim 10 wherein said step of threading said valve cover is  
2 accomplished by rotating a head extending from said top of said locking screw.

1           14.     A method as set forth in Claim 1 wherein steps are performed in reverse order to  
2 remove said valve cover.